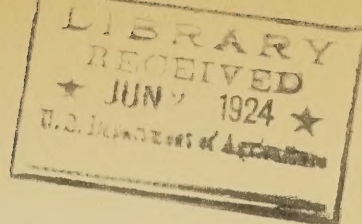


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THE EXTENSION PATHOLOGIST

"To promote economic crop production, improve the quality of the products, and prevent wastage in storage, transit, and at the market."

Issued by
THE OFFICE OF COOPERATIVE EXTENSION WORK
AND
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UNITED STATES DEPARTMENT OF AGRICULTURE

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THE EXTENSION PATHOLOGIST

Volume 2.

Numbers 4 and 5.

Contents of this issue.

	<u>Page</u>
The demonstration as used in extending methods of disease control..	29
Demonstrations and their use.....	33
Suggestions on extension photography.....	36
Changes in personnel.....	38
Use of radio.....	38
News letters.....	38
Extension literature.....	38

NOTE: Press of work in the Washington office prevented our putting out an issue during April; consequently, in order to avoid confusion, this number has been marked "April-May, Volume 2, Numbers 4 - 5."

THE UNIVERSITY OF CHICAGO

Volume 1, Number 1

1954

CONTENTS

1	Editorial
25	The development of the theory of the structure of the atom
35	Quantum mechanics and the theory of the atom
45	Quantum mechanics and the theory of the atom
55	Quantum mechanics and the theory of the atom
65	Quantum mechanics and the theory of the atom
75	Quantum mechanics and the theory of the atom
85	Quantum mechanics and the theory of the atom
95	Quantum mechanics and the theory of the atom

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THE DEMONSTRATION AS USED IN EXTENDING
METHODS OF DISEASE CONTROL.

By E. A. Stokdyk, Extension Plant Pathologist,
Kansas State Agricultural College.

Demonstrations and their Place in Extension Work.

1. Nature of a demonstration. - It is usually the case that, when introducing a new practice, the demonstration used should not merely show the method by which this practice is applied but should show the advantage of the recommended measure over the method commonly used in the community. For instance, it is not sufficient to show how to dip potatoes and call the work a demonstration. To have a bona fide demonstration, one must arrange plots on which records are to be taken. The method demonstration by itself can be used advantageously after the result demonstration has convinced growers that the practice is a desirable one.

So far as possible, the demonstrations should be of such a nature as to be easily interpreted. In other words, they must be "as plain as the nose on your face." Extension pathologists are fortunate in their line of activity, for this factor works for them. Successful disease control is usually very outstanding.

Proven practices are always advisable as a basis for demonstrations. If there is any doubt as to the value of a practice, one should refer to the work as being experimental, and it should be conducted by the experiment station or by some other research agency.

In arranging for demonstrations, it is sometimes wise to speak of them as tests. Some demonstrators lose interest and enthusiasm if they think the result is already known. The inherent curiosity is aroused when a test is made.

2. Number of demonstrations to be provided. - This will depend upon the amount of time the county agent and the specialist are going to spend on the work. Arrange as many as you know you will be able to take records on. It is better to carry one through to completion than to carry on a dozen and not complete them. Often it happens that people who have witnessed the method carry on demonstrations of their own and report later; however, if we keep our hand on a few and take the records ourselves, we shall have data to back up our next year's work.

If the project applies to each community in the county, it is well to arrange one demonstration in each community. People usually do not travel far from home to see this work; and even if they do, they always want to know how the practice would have resulted if used near home.

If the project is undertaken for the State in general, the number will be limited to some extent by the amount of time available. It is better to cover a few counties thoroughly than to scatter your efforts over a wide territory and not accomplish anything definite. Thorough work in a few places will give results; and in a few years, the recommended practices will be applied by the majority of growers.

3. Character of the demonstrator. - This is a subject which I believe is often given too little consideration. We pick a man who is not a leader and lose considerable time, because we find out too late that he is not the man to have worked with. In every community there is one man, or several men, whom the others unconsciously follow. They are not always the most prosperous, nor do they necessarily have the finest buildings and the best farms. Sometimes a man's prosperity is due to causes other than his ability as a farmer. It is easy for a county agent who has been in his county for a considerable time to choose a good demonstrator; but frequently, the agent is new, due to the rapid change in personnel. In such a case, experience has shown that the place to inquire about the leader is not among the farmers themselves; go instead to the bank, the railway office, grain elevator, or hardware store, and evidence will soon be found as to who is the recognized leader.

The demonstrator should be broad minded, and the man to whom others point is usually the right one. He should be in sympathy with the work and, above all, a big man in the sense that he will do his share in seeing that the undertaking is carried through.

4. Assignment of labor and materials. - This, I have found, varies to a large extent. In most cases, the demonstrator furnishes all labor and material needed, and I believe this is the most desirable arrangement. It gives him an added interest in the demonstration and makes him look at it from an economical viewpoint, which is highly desirable.

In cases where the demonstration is located some distance from a town or city, the county agent often provides the chemical, if one is needed. He should, of course, be reimbursed. In general, the more material and labor the demonstrator furnishes, the greater interest he will have in the demonstration.

In the matter of taking records, the work is divided between either the county agent and the demonstrator or the specialist and the demonstrator. The county agent is usually made responsible for the records; but if the specialist is in the county, and it is advisable to be taking two sets of records, the specialist will assist the demonstrator.

5. Layout of demonstrations. -

a. Size. - It is advisable to make the demonstration large enough to fit well into the cultural practices of the community. If a spraying demonstration is put on, enough trees should be sprayed to require one tank of material. If, in dealing with seed treatment of potatoes, it is found that the grower digs 20 rows at a time, enough seed potatoes should be treated to plant that many.

b. Number of check plots. - If possible, leave as many rows of trees in the check as there are in the demonstration. This is desirable the first year. The size of the check plots during succeeding years will vary with the nature of the demonstration. If the work during the first year is convincing, the check area may be made smaller and sometimes eliminated.

c. Location. - It is a good plan to establish the work near a well-traveled highway easily accessible to the public. A sign will attract passers-by and arouse interest. If possible, locate your plot in the center of a field, so that it will be neither handicapped nor have an unfair advantage.

6. Importance of instructing county agents in these control measures. - The county agents have many irons in the fire and sometimes do not learn as much about the demonstrations as they should. If possible, test the agents out, having them outline the demonstration to farmers while you look on. This will "put them on their toes," and they will be likely to make themselves thoroughly familiar with your subject matter. Your instructions should be sufficiently clear to enable the county agent to carry on the work himself after seeing a few demonstrations.

7. Field meetings, tours, and publicity to be given when results can be observed. - A tour of demonstration plots is the best way I know to bring to the attention of growers the value of a recommended practice. Seeing is believing, and the time to drive the nail home is when the plots show to advantage. It is regrettable that this time usually comes when the people are busy; but if the tour is held a second or third year, the growers will forget that they are busy, for those who go will never stop telling about what they saw. A picnic helps to get the people to the demonstration and to bring the women out; and the women, by the way, have a great influence on the farming operations and practices.

8. Taking pictures. - Good pictures are excellent records. They are hard to get, and good opportunities for procuring them are sometimes overlooked. The writer is a poor photographer and has to resort to employing a commercial photographer. The time spent in obtaining pictures is well worth while, and the record thus obtained lives for years instead of a few months.

Measuring Results of Demonstrations.

1. Importance. - It is highly important that the results of demonstrations be measured in order (1) to determine the effectiveness of the measures we are recommending, (2) to clinch the idea of the value of the practice in the minds of those who are to make use of the practice, and (3) to justify our efforts.

2. Measures to be used. - The measures to be used will depend upon the length of time the demonstrations have been conducted. We should not expect to use the same measures the first year that would be used the second, third, fourth, or fifth years. The first year we can use such measures as:

- a. Number of people reached.
- b. Effectiveness of the practice demonstrated in the control of diseases, the increase in yield, and increase in quality of product.
- c. The attitude of growers toward the practice.

After the first year we should expect to use more concrete measures, such as:

- a. Number of farmers following recommended practice.
- b. Number of acres to which recommended practice was applied.
- c. Increase in yield and quality as a result.
- d. Dollars and cents saved.

3. Nature of records to be made. - This again depends upon the length of time the demonstration has been conducted. The first year it is rather easy to obtain records, for we have only to record:

- a. Attendance at meetings.
- b. Yield data on demonstration plots.
- c. Attitude of growers toward the practice as expressed at meetings and through interviews.

After the first year, we must rely on others to some extent for our records. Records which will give us the desired information are:

- a. Questionnaires to growers asking for specific information regarding the use of the practice.
- b. Surveys by county agents.
- c. Yield data on demonstration plots.
- d. Market reports.

4. Interpretation of these data. - These data will be interpreted by various agencies and should, therefore, be given careful consideration. Farmers, commercial agencies, city consumers, and extension directors are going to study them, so that we must be sure we see every point of view. Perhaps it is best to use the interrogatives:

- a. How effective is the recommended practice in the control of disease?
- b. Is it practical?
- c. How many farmers are adopting the practice?
- d. How much has the practice saved growers and consumers?
- e. Have the money, effort, and time spent on the demonstration been justified?

The following article should be of particular interest in that it was prepared by Mr. H. W. Hochbaum. Having been associated with agricultural instruction at the Colorado State Teachers' College and at the California State Normal School, as well as having at one time been engaged in county agent work in Idaho, Mr. Hochbaum has a good understanding of the problems involved in agricultural teaching. This combined with his knowledge of county agent work throughout the United States makes him particularly well qualified to discuss the subject of demonstrations. F. C. M.

DEMONSTRATIONS AND THEIR USE.

By H. W. Hochbaum, Field Agent,
Office of Cooperative Extension Work,
United States Department of Agriculture.

There is no subject in extension work which has been so prominent as have demonstrations. Yet there is no subject, perhaps, which is so little understood. Certainly there is much confusion about demonstrations and their design, management, and use.

Demonstrations should serve to show in actual practice the value of the methods that may be recommended. They should be used to teach people by giving them opportunity to observe for themselves. Often this purpose is submerged and the demonstration is used to obtain data which may be disseminated through the written or spoken word. All too few people see the demonstrations to get at first hand the lessons which they suggest. Demonstrations should teach practices, not principles.

If we appreciate, however, as pointed out by Doctor Smith and Mr. Eugene Merritt of the Office of Cooperative Extension Work, that the majority of the people are essentially imitators, then the true significance and value of demonstrations is understood. We are told that more than three-fourths of the people learn, not through presentation of principles, but through visualization and actually taking part in concrete practices. This is the largest group we have to reach in our extension work. Men learn through suggestion and adopt suggestions rather than applying principles. Perhaps much of the demonstration work has failed because it has not been designed to reach this large group, and has not been carried forth so that the average man could apply precept to practice.

Number of Demonstrations.

The number of demonstrations to be carried on in connection with any one project varies, of course, with the conditions and with the differences in aims and purposes. The feeling has been growing, however, that much of the demonstration work is too complicated; that is, involves too many practices; and because of this, there may be too few demonstrations conducted to effectively reach many people. If it is kept in mind that the great majority of people do not apply principle to practice, more and more of the demonstration work will be designed so that he who runs may read and may apply by imitation without much change or further explanation. Simplicity of the demonstration effort not only increases its value from a teaching standpoint but makes it possible for local agents and committeemen to manage a larger number. There should be a sufficient number of demonstrations to meet local conditions which vary community by community. The work must be representative of the practices and conditions that the county presents. There must be, also, a sufficient volume of demonstration efforts so that the examples may be seen by a large number of farmers and that more cumulative evidence and interest may be developed. The average farmer does not go far to see a demonstration. The spread of influence of one demonstration may then be comparatively small.

If we divide the number of square miles in a county by the number of demonstrations carried on, it may be seen that the number of demonstrations is too small. Now, whether we should have 30 demonstrations in a county, or 40, or 60, or 100, depends entirely upon the problem that is being met, the practices which are being taught, the class of people that we are trying to reach and the local conditions that must be met. In general, in the Northern States at least, it may be said that, for many projects an insufficient number of demonstrations has been conducted.

Demonstrations must be reenforced by other means. This factor of the number of demonstrations ties up also with the ultimate objective. If the effort is being made to get a large number of people to adopt a practice, extension agents can well concern themselves in carrying out carefully outlined plans to bring results of demonstrations to a large number of people by field meetings, tours, posters, exhibits, publicity, and other means, and should even go so far as to include a definite attempt to obtain the pledge of these people that they will copy the demonstrations and practice the lessons. This means that a rather definite campaign to spread the influence or, for want of a better term, to "sell the practice" to the people may be made. All this is made easier if we have a definite demonstration - teaching period with sufficient evidence from numerous single-practice demonstrations to make the teaching seem vital to the people.

As an illustration, a county agent in one of the Middle Western States has been carrying on lime demonstrations for the last six years. Not many people are using lime as a result of these demonstrations. If the practice as taught by the demonstrations really meets a need, might it not be better to quadruple that number, make a mass attack, get more results and more enthusiasm, and shorten the demonstration period? Results of much demonstration effort can be seen in one or two years. Why drag demonstrations along for eight or nine years? This applies to a State as well as a county. If the problem is district or state-wide, concentrated effort should be made to gain the interest and attention, desire and confidence of a large number of people as quickly as possible and then by the force of many demonstrations and the results these show, bring about widespread influence and adoption.

Relation of County Agents.

It is believed that the specialist can well plan more demonstrations of a simple nature which can be organized, managed, or largely supervised by the county agents. At least, this should be true of a type of demonstration effort which is carried on to show a large number of people that certain recommendations will bring results. The practices to be taught must, therefore, be simple, easily imitated, and easily adopted. The average county agent, though he may have no great technical knowledge of the subject matter, should be trusted to carry on demonstrations of this kind. If they are too technical and too complicated for him to manage, the practice or practices which they are supposed to teach are quite likely to be too technical and too complicated for the average farmer to adopt. It is understood, of course, that in almost any county and in almost any activity, a certain number of farmers are far advanced in that industry and possess much special knowledge. The extension teaching with this type of farmer naturally would be more technical than with

the great mass, but the specialist must not overlook the fact that the teaching which is designed to reach this class in terms of their capabilities and problems is necessarily far more advanced than the teaching required for the average. Indeed, it may fail and often does fail to reach the average farmer at all.

A close-working relationship and better-planned organization is very essential just now that both specialists and county agents may teach a larger number of people the lessons of the demonstration effort in a shorter time. In all too many cases the county extension agent is an accessory after the fact. It would seem more logical for the specialist to so design the demonstration effort that the responsibility for conducting the demonstration would be accepted by the county agent. The average specialist can not give detailed personal supervision to many demonstrations and at the same time expect to reach many parts of the State in a short time. For most projects and for most people, a larger number of simple demonstrations needs to be conducted.

There is a great opportunity here for the specialist to make detailed and more carefully outlined plans of work which will include not only plans for conducting the demonstrations but also plans for the use of other extension means and agencies to reenforce the demonstration effort. With such plans, the average county agent with the help of his supervisor can adapt the teaching effort to local conditions. But then, the county agent must be a working partner. He must be more than a contact man and organizer. He needs to be given, in many cases, a larger responsibility in actually managing the demonstration effort. To do this effectively, specialists need to develop and organize supplementary helps and assist in training the county agent to carry the work out on a larger scale. At present, the supervisors who are making a more detailed study of the use of extension means and agencies find that many county agents are all too hazy about the details of many important projects carried in their programs of work. Often this may be due to the fact that they are expecting a specialist to carry the work on and to give it more personal attention than he can give. In most cases, however, a lack of detailed plan is most obvious. There is comparatively little in the average project plan which will allow the local extension agent to organize and carry on the work in his county. There is indefiniteness about the design of the demonstrations, their purpose, care, and management. There is also a great deficiency of supplemental helps, that is, press notices, subject-matter articles, exhibit material, posters, photographs, slides, and other agencies which logically and rightly must be used to reenforce the demonstrations. There seems to be, also, a general tendency to expect too much of the demonstrations or to use them largely to get some interesting data for publicity purposes. We must not get away from the fact that the local demonstration properly reenforced by other means and agencies, is the most powerful factor in teaching people the worth of a recommended practice. It should be conducted for that purpose primarily, no matter what other purposes it may fill.

Conclusion

In summarization it may be emphasized that the effort is now being directed to make demonstrations more simple and to carry a larger number, to have a definite demonstration period within reasonably short time limits, to merge

with the demonstration period or to have immediately following this a carefully outlined plan of teaching effort which may go so far as to attempt to obtain definite pledges of adoption. All this means that preliminary-publicity meetings, exhibits, posters, field-demonstration meetings, and tours need to be well organized and planned and that there must be closer working contact between the specialist and the county agent, the specialist to work out plans broadly for a district or a State and to help the county agent in managing and carrying on demonstration effort locally. In the last analysis, however, it should be made quite clear that the local responsibility for the success of the demonstration effort and the teaching work is the agent's. This will require more detailed plans and a more definite training of county agents than is being given now.

Greater recognition is given the point that the demonstration process is a teaching process and that, in this teaching process, the extension agent is concerned with developing three stages. These are:

1. To awaken attention and interest.
2. To develop confidence and desire.
3. To couple decision and action.

These steps will be infinitely easier and far more people will be reached if it is understood that the average man is an imitator, that he is moved more by suggestion than by principle and argument. Therefore, demonstrations should be simple, easily copied and adopted, and economical.

At the close of his paper, Mr. Stokdyk made reference to the use of photographs and the difficulties that sometimes prevent our obtaining them. When in doubt about photographic technique, the writer usually consults with Mr. C. H. Hanson who is unusually well informed on this subject. In the following article Mr. Hanson discusses some of the simple rules which must be followed if the work is to be satisfactory. F.C.M.

SUGGESTIONS ON EXTENSION PHOTOGRAPHY.

By C. H. Hanson, Specialist in Visual Instruction,
Office of Cooperative Extension Work,
United States Department of Agriculture.

Examination of a large number of annual reports of extension specialists reveals that at least 80 per cent of the photographs submitted are quite without value for either publicity or educational purposes. The following suggestions are offered in the hope that they may prove helpful to those who desire to improve their photographic work.

The story. - Every picture must have a story to tell. The making of a picture requires thoughtful selection and arrangement of the subject. Thoughtless "snapping" nearly always ends in failure. There should be but one principal subject, and all else should be subordinate thereto. Everything which is not essential should be excluded. The point of view which best tells the desired story should be selected with care and the picture taken from that angle.

Human figures. - All individuals who are not essential to the scene should be excluded. When figures are used, they should never be lined up in military fashion, facing the camera. The best results are nearly always obtained by arranging the group in a manner natural to the activity engaged in, making the exposure at a moment when the interest of the entire group is concentrated upon some one person or thing. The exposure should never be made while any one is looking at the camera.

Background. - The background should be appropriate to the subject and should contrast sufficiently with the subject to cause it to stand out clearly. When photographing trees, for instance, it is well to select specimens which can readily be photographed against the sky (or the distance). A low point of view is often helpful.

Foreground. - The foreground should always be sharp and full of detail. If the focussing scale is correct, good results can usually be obtained by placing the camera upon a steady tripod and using a medium or small lens aperture. The presence of tall weeds, fences, and other ugly objects between the camera and the subject should always be avoided.

Lighting. - Contrast and detail are essential in a picture, and these can best be obtained by having the sun somewhat at the side of the camera. The common practice of having the sun directly behind the camera produces flat pictures; and therefore, such lighting should rarely be used.

Exposure. - At least 50 per cent of the pictures made by the beginner are ruined by underexposure. Underexposure is indicated by lack of detail in the shadows; the print is too black. It can be avoided by the intelligent use of an exposure meter or table. A few rules that may be helpful are:

1. Expose for the shadows and let the high-lights take care of themselves.
2. The closer and darker the object, the longer the exposure required.
3. When in doubt, always increase rather than decrease the calculated exposure.

Readers desiring constructive criticism of negatives or prints or more detailed information regarding photographic problems are invited to communicate with the writer.

NOTE: The above articles deal with matters related to methods of conducting extension work in plant pathology. In such papers, which will appear from time to time, important points brought out in the outline published in the February number will be enlarged upon. It will be found helpful to keep that outline for reference. F.C.M.

CHANGES IN PERSONNEL.

In a letter of March 28th, E. L. Nixon makes the following statement:

"For fear you do not have the list of extension pathologists up to date for Pennsylvania, we now have with us Prof. W. S. Krout, formerly of Massachusetts station, Dr. R. S. Kirby of Ithaca, N.Y., and Prof. F. G. Miles who has been on leave of absence for a year and is now back in the work."

USE OF RADIO.

In the January number, mention was made of the fact that broadcasting of pathological subjects has been practiced in Iowa, Indiana, Pennsylvania, and Minnesota. Washington is also using this means of disseminating information. I have on my desk two interesting papers, "Rose Diseases In Washington" and "Some New Plant Diseases," by G. L. Zundel. These were delivered over the radio in March.

NEWS LETTERS.

Minnesota. - "The Plant Disease News Letter" (mimeographed) issued by the Division of Plant Pathology and Botany in cooperation with the Extension Division, University Farm, St. Paul, should be most helpful to county agents. The March 12 number, for example, contained timely information on control of flax wilt and prevention of fruit diseases and grain smuts, particular attention being given to method of applying control.

New York. - The "Weekly News Letter Concerning Insect Pests and Plant Diseases" (mimeographed) is again being issued. E. F. Guba and M. F. Barrus who edit this have developed a most original news sheet. It contains not only such subject matter as directions for applying seed treatments and other control measures, but also condensed reports from the counties on such matters as weather conditions, development of crops, and diseases or insects which require application of sprays. In the April 14 number, we are informed that 9 special field assistants are located with 11 counties this season. Five industrial fellows are at present working in the State.

Wisconsin. - R. E. Vaughan, by issue of an occasional mimeographed letter entitled, "Timely Suggestions on Plant Diseases," keeps his subject matter fresh in the minds of county agents and teachers of agriculture. An occasional reminder of this sort helps to give our work its proper place in the county program.

EXTENSION LITERATURE.

During the December meeting of the American Phytopathological Society in Cincinnati, an informal conference of the majority of extension men present was held for the purpose of discussing policies to be followed in the development of our news sheet. It was suggested that it would be helpful if current extension literature on pathological subjects by the States could be listed in each issue. Those present volunteered to send in recent publications and to

place the writer's name on the mailing list for all such material issued in the future. This will be filed in the office of THE EXTENSION PATHOLOGIST, and citations will be made in THE EXTENSION PATHOLOGIST of papers received. Since our last issue the following literature has reached this office.

Delaware:

Program of control measures for some of the diseases and insect nests in the orchard. Univ. of Del. Ext.Circ. 13; 8 p. March, 1924.

Adams, J.F., Sweet potato seed treatment, Univ. of Del. Infor.Card, No.1; 1 p. March, 1924.

Plant diseases and their prevalence for 1923 in Delaware. Univ. of Del. Ext. Circ. 14; 29 p. March, 1924.

Florida:

Blackmon, G.H., Cultivating the pecan orchard. Univ. of Fla. Press Bul. 352-A; 2 p. March, 1924.

Watson, J.R., Thrips in the citrus bloom. Univ. of Fla. Press Bul. 353; 2 p. March, 1924.

Onion thrips. Univ. of Fla. Press Bul. 356; 2 p. March, 1924.

Purple scale. Univ. of Fla. Press. Bul. 355; 2 p. March, 1924.

Control of aphids on citrus. Univ. of Fla. Press Bul. 357; 2 p. April, 1924.

Indiana:

Gardner, Max W., Tomato wilt. Purdue Univ. Agr. Exp. Sta. Leaflet 116; 6 p. illus. May, 1921.

Hansen, Albert A., Nineteen noxious weeds of Indiana. Purdue Univ. Agr. Exp. Sta. Circ. 106; 32 p. illus. February, 1922.

Wild garlic eradication. Purdue Univ. Dept. of Agr. Ext. Bul. 111; 8 p. illus. Aug., 1922.

Two common weeds that cause ^{death} Purdue Univ. Agr. Exp. Sta. Cir. 110; 8 p. illus. Feb., 1923.

Facts about Indiana's poisonous weeds. Series of 4 articles, illus., published Indiana Farmers Guide. March 31 - April 21, 1923.

Solving Indiana's weed problem. Series of 15 articles, published Indiana Farmers Guide. May 13 - August 19, 1922.

Sodium arsenite as a weed killer. Purdue Univ. Dept. of Agr.
Ext. Weed leaflet 2; mim. 2 p.

Canada thistle legislation in Indiana. Purdue Univ. Dept. of
Agr. Ext. Weed leaflet 3; 6 p. mi.

Gaylord, F.C. and Gregory, C.T., More and better potatoes. Purdue
Univ. Dept. of Agr. Exp. Ext. Bul. 89; 24 p. illus. Feb., 1923.

Gregory, C.T. Cabbage yellows. Purdue Univ. Dept. of Agr.
Ext. Bul. 104; 8 p. illus. April, 1922.

Modified oat smut treatment. mim. 1 p.

How to cure Indiana's sick plants. Series of 15 articles, illus.,
published Indiana Farmer's Guide. Dec. 2, 1922 - Mar. 24, 1922.

Helpful hints in the control of vegetable diseases. Purdue Univ.
Dept. of Agr. Ext. 2 p. mim.

Gregory, C.T., Directions for making modified rag doll
with an ordinary newspaper. 1 p.

Maryland:

Ballard, H.R. and Radebaugh, A.D., More tomatoes from fewer acres.
Univ. of Md. Ext. Bul. 31; 13 p. illus. March, 1924.

Dennee, John S., Maryland farm statistics. Univ. of Md. Ext. Bul. 32;
41 p. illus. March, 1924.

Carpenter, Ray W., Cutting production costs with farm machinery.
Univ. of Md. Ext. Bul. 33; 13 p. illus.

Maryland Seed Certification Board, Certification of seed potatoes.
Univ. of Md. Ext. Circ. 55; 8 p.

New York:

Thomas, H.E., Tobacco wildfire. N.Y. St. College of Agr. Cornell
Ext. Bul. 79; 7 p. illus., February, 1924.

Reddick and Crosby, C.R., Protecting the home apple orchard by
dusting. N.Y. St. Col. of Agr. Cornell Ext. Bul. 1; 14 p.
illus. May, 1916.

Jagger, I.C. Control of vegetable diseases. N.Y. St. Col. of Agr.
Cornell Ext. Bul. 19; 28 p. illus. June, 1917 (Revised
March, 1921)

Burkholder, W. H. and Hawley, I.M., Diseases and insect and animal
pests of the field bean in New York. N.Y. St. Col. of Agr.
Cornell Ext. Bul. 58; 38 p. illus. Feb., 1923.

Printed one-page leaflets have been received from New York on the following subjects.

Preparation of Bordeaux mixture.
Fall spraying for peach leaf curl.
Cherry schedule.
Plum schedule.
Pear schedule.
Apple schedule.
Peach leaf curl.
Fire blight.
Brown-rot of stone fruits.
Apple scab.
Late blight and rot of potatoes.
Stinking smut of wheat.
The loose smut of wheat and barley.
Control of oat smut by the dry method.
Seed treatment of potatoes.
The control of potato scab by acidifying the soil.
Determining the strength of corrosive sublimate solution.
Potato diseases carried in the seed.
Celery blight.
Black-rot and black-leg of cabbage.
Onion smut.
Club root of cabbage.
Bean anthracnose.
Mosaic disease of beans.
Dry root rot of beans.
Bacterial blight of beans.

Pennsylvania:

Hodgkins, H.E. and Nixon, E.L., Spraying schedules for tree fruits.
Pa. St. Col. Ext. Cir. 92; illus. 6 p. March, 1922.

Nixon, E. L. and Hodgkins, H.E., Profitable potato spraying, Pa. Sta.
Col. Ext. Circ. 94; 14 p. illus. April, 1922.

South Carolina:

Musser, A.M. and Ludwig, C.A., Certified seed in Irish potato production. Clem. Agr. Col. Bul. 218; 16 p. December, 1923.

Washington:

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